

531,757

24 APR 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
13 May 2004 (13.05.2004)

PCT

(10) International Publication Number
WO 2004/040758 A1

(51) International Patent Classification⁷:

H03K 4/02

(74) Agent: MCCORMACK, Derek J.; Motorola European
Intellectual Property Operations, Midpoint, Alencon Link,
Basingstoke RG21 7PL (GB).

(21) International Application Number:

PCT/EP2003/050705

(22) International Filing Date: 8 October 2003 (08.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

02292729.7

31 October 2002 (31.10.2002) EP

(71) Applicant (for all designated States except US): MO-
TOROLA INC [US/US]; 1303 E.Algonquin Road,
Schaumburg, IL 60196 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): SICARD, Thierry
[FR/FR]; Motorola SA, Avenue Du General Eisenhower,
F-31023 Toulouse (FR).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

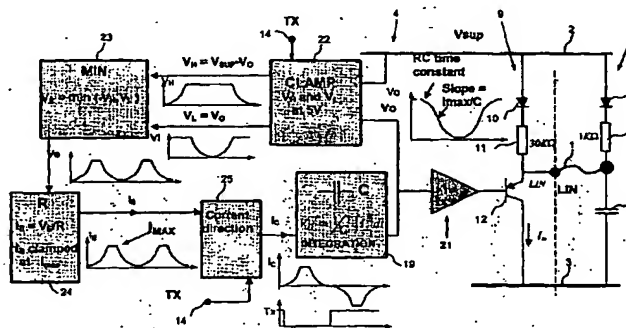
(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: TRANSMITTER FOR A CONTROLLED-SHAPE SWITCHED SIGNAL ON A COMMUNICATION LINE



(57) Abstract: A transmitter (4) for a controlled-shape switched signal on a communication line (1) comprises a signal generator including a capacitor (19) producing the switched signal to be applied to the line. The capacitor is charged by a charging current (I_c) in response to an input signal (TX) so as to define an edge of the switched signal. The charging means (24, 25) comprises a feedback loop responsive to the capacitor voltage (V_o) for generating a feedback current (I_E) having a continuous magnitude that is a progressive function of the capacitor voltage, the charging current (I_c) being a function of the feedback current (I_E). Resistors (R ; R_1 , R_2) define an RC circuit with the capacitor (19) enabling the time constant of the feedback current to be controlled. Preferably, the feedback loop generates first and second feedback voltages (V_H , V_L) one of which is a rising function of the capacitor voltage (V_o) and the other is a falling function of the capacitor voltage (V_o). The feedback current (I_E) is generated first as a function of one of the feedback voltages (V_H , V_L) and subsequently as a function of the other of the feedback voltages. Preferably, the rate of change of the feedback current (I_E) increases with time while the one of the feedback voltages is selected and decreases with time while the other of the feedback voltages is selected. Preferably, the rate of change of the feedback current (I_E) is a function of the capacitor voltage (V_o) such that the capacitor voltage varies substantially as an exponential function of time, at least for a part of the edge of the switched signal (40, 42, 44, 46) and may be a linear function of time for another part (41, 43, 45) so as to approximate closely a sinusoidal half cycle with few harmonics.

WO 2004/040758 A1